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# Chapter 11

## *Indiana Public Transit System Plan*

# Indiana Public Transit System Plan

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## Public Transportation System Background

### Introduction

The state's role in public transportation has undergone subtle changes over the nineteen (19) years since its inception. Indiana has changed from an earlier emphasis on helping systems by providing technical assistance to encouraging improvements in system productivity through adjustments in allocating the state's grant program. Indiana does not have a state owned and operated public transit system. All of the systems are either owned or controlled by local units of government, which are solely responsible for making all operating decisions. The state's major function is to distribute financial assistance and, to a lesser extent, provide technical assistance and planning support.

State transit policy has traditionally been set by the Indiana General Assembly and has been in response to changes in federal policy. State policy has been limited to municipally owned bus and commuter rail transit services and to a lesser extent for specialized transit provided by social service agencies.

Regular route intercity bus service was substantially deregulated in response to the Bus Regulatory Reform Act of 1982. The state's role in this industry is limited to certifying that regular route services are carrying sufficient liability insurance levels. The state still approves all charter operations within Indiana. These functions are handled by Motor Carrier Tax and Authority Divisions within the Indiana Department of Revenue. In addition, INDOT provides about \$500,000 a year in intercity bus assistance through the federal rural transit assistance program known as Section 18.

The Public Transit Section's (INDOT) mission is to improve personal mobility and the quality of life through preservation and enhancement of passenger delivery systems. This mission is operated through the following objectives:

1. Improve access to employment, services, education, and recreational for all Hoosiers.
2. Increase modal choices through high occupancy, shared-ride travel options to provide every community with a broader range of transportation options.

3. Support affordable modal choices for all Hoosiers.
4. Encourage energy conservation.

### **Early Years: 1965-1979**

Indiana's initial involvement in public transportation came with the passage of the Indiana Urban Mass Transportation Act in 1965. This legislation enabled communities to form independent property taxing districts to maintain and improve transit services. The Act was also significant in that it set the framework in which state government viewed public transit for the next decade; namely, that transit was a local concern that needed to be addressed with local resources.

In 1975, the state became directly involved in local public transportation. The state program was created in response to recommendations from the Indiana Mass Transportation Study Commission of the General Assembly and from pressure applied by the state's major urban areas. Congress had recently passed a federal assistance program that would help offset the cost of operating local transit. Indiana cities viewed this federal program as a means to reverse the rapid declines in service, improve operations and increase ridership. However, because of property tax controls imposed in 1973, localities did not have sufficient local funds to match federal funding. The primary reason for state support was to provide federal match relief for localities, although energy dependence from the 1974 oil embargo and environmental issues may have been considerations. In addition to creating a state matching grant program, the General Assembly also established a Division of Public Transportation to manage the program and to provide technical assistance to localities interested in improving or establishing transit service.

The Institute for Urban Transportation (IUT) at Indiana University, Bloomington, staffed the state program under contract with the Governor's Office. Known as the Indiana Mass Transportation Improvement Project, IUT focused on helping municipalities apply for a growing source of federal funds and limited state assistance to recapitalize aging transit fleets and to offset operating losses. At this time the state matching grant program received an annual appropriation of \$2.0 million from the state's General Fund.

In 1978, Congress passed a new grant program for small cities, towns and counties patterned after its program to larger cities. This decision expanded the base of Congressional support for what had been traditionally viewed as an urban issue. States were required to manage the program on behalf of these smaller systems. In response to this new program the General Assembly appropriated

state funds in State Fiscal Year 1979 to staff a Division of Public Transit within the State Planning Services Agency.

### **New Funding Commitment: 1980-1985**

The first half of the 1980's can best be characterized as a period of new growth and opportunity as Indiana felt the affects of an expanded federal transit program. The General Assembly passed and enacted in 1981 a dedicated portion of the state sales tax for public transit. The new program, the Public Mass Transportation Fund (PMTF) is comprised of 0.76% of the state's 5.0% sales and use tax. In 1980 this had the affect of doubling the state's annual appropriation to transit from \$4.5 million to \$9.2 million. At the time, Indiana was one of only a few states that had dedicated funding. This was no small achievement given the state's predominantly rural composition and long standing policy that transit was a local issue.

Between 1981 and 1993, PMTF appropriations increased from \$9.25 million to \$18.5 million, a 99.0% increase, and a 6.0% increase since 1992. Considering the increase in state funding at a time when federal funding has been drastically reduced, it is apparent the PMTF has become a necessary aid to the operating budgets of transit agencies. Figure 1 illustrates the increase in PMTF funding over a ten year period.

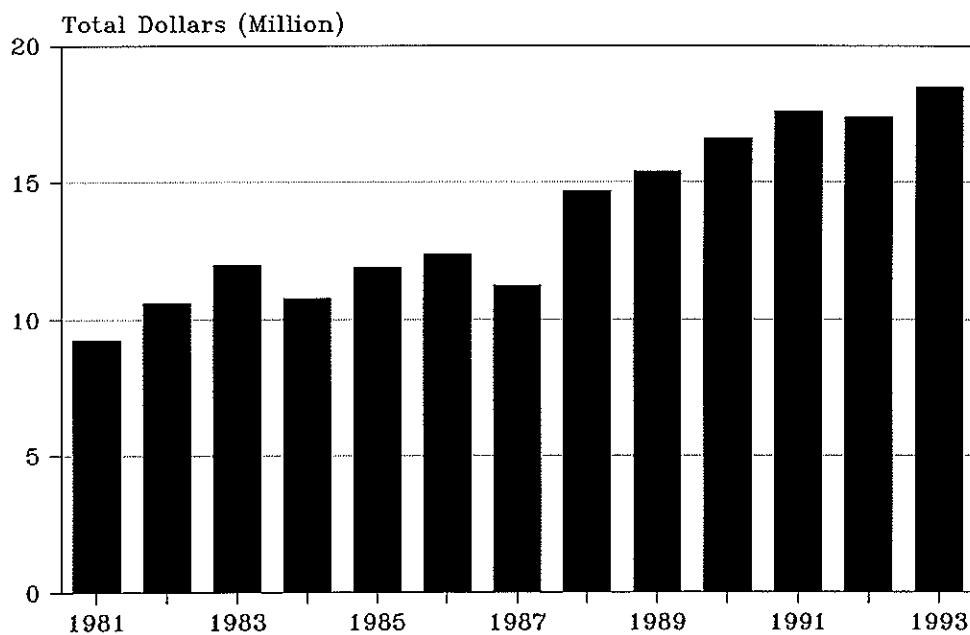
The PMTF remained a federal matching grant program, with most of the assistance going to the bus systems in the state's major urban areas; and to the Northern Indiana Commuter Transportation District, which subsidized the South Shore commuter rail service between South Bend and Chicago. This additional state funding, coupled with a growing federal program, fostered the emergence of new state supported transit systems; increasing the number from 18 public systems in 1980 to 31 by 1985.

### **Defining a New State Role: 1986-1994**

This period was marked by a dramatic downturn in the federal program while the PMTF continued to grow. This forced the state to assert greater influence and control over the distribution of PMTF dollars. Federal reductions prompted the state to impose a moratorium on adding new transit systems to the PMTF. This moratorium is still in effect (limited to 32 systems).

In 1986 the allocation formula for PMTF was changed to encourage improvements in performance and local financial support. Based on the revised formula, agencies compete for funding with similar systems based on the following factors:

Figure 1  
Indiana PMTF Appropriations



Source: INDOT, Planning Division, 1994.

Table 1  
State of Indiana  
Public Mass Transportation Fund Appropriations

Year	Appropriation	Cumulative Total
1981	\$ 9,250,000	\$ 9,250,000
1982	10,613,630	19,863,630
1983	11,986,950	31,850,580
1984	10,773,660	42,624,240
1985	11,906,506	54,530,746
1986	12,399,869	66,930,615
1987	11,239,164	78,169,779
1988	14,688,679	92,858,458
1989	15,379,887	108,238,345
1990	16,597,020	124,835,365
1991	17,592,841	142,428,206
1992	17,385,372	159,813,578
1993	\$18,494,247	\$178,307,825

Source: INDOT, Intermodal Division, 1994.

- Locally Derived Income;
- Passenger Trips;
- Total Vehicle Miles, and;
- Population

The net effect of this change has been an increase in the local contribution of transit funding. Because PMTF is matched with local funding, the increases in these two funding sources has been consistent. In 1986 a moratorium was initiated which restricted PMTF funding to transit agencies which were in operation in that year. This was due to a concern that an expansion of the program would be at a cost to existing systems through reduced funding.

During this period INDOT also developed a “performance” based formula for distributing assistance. The formula attempted to strike a balance between encouraging improved productivity and fiscal self-reliance. For the first time the state had identified a purpose for the PMTF beyond matching federal funds. In essence, the formula was preparing systems to assume a greater role in funding transit before federal operating assistance disappeared altogether.

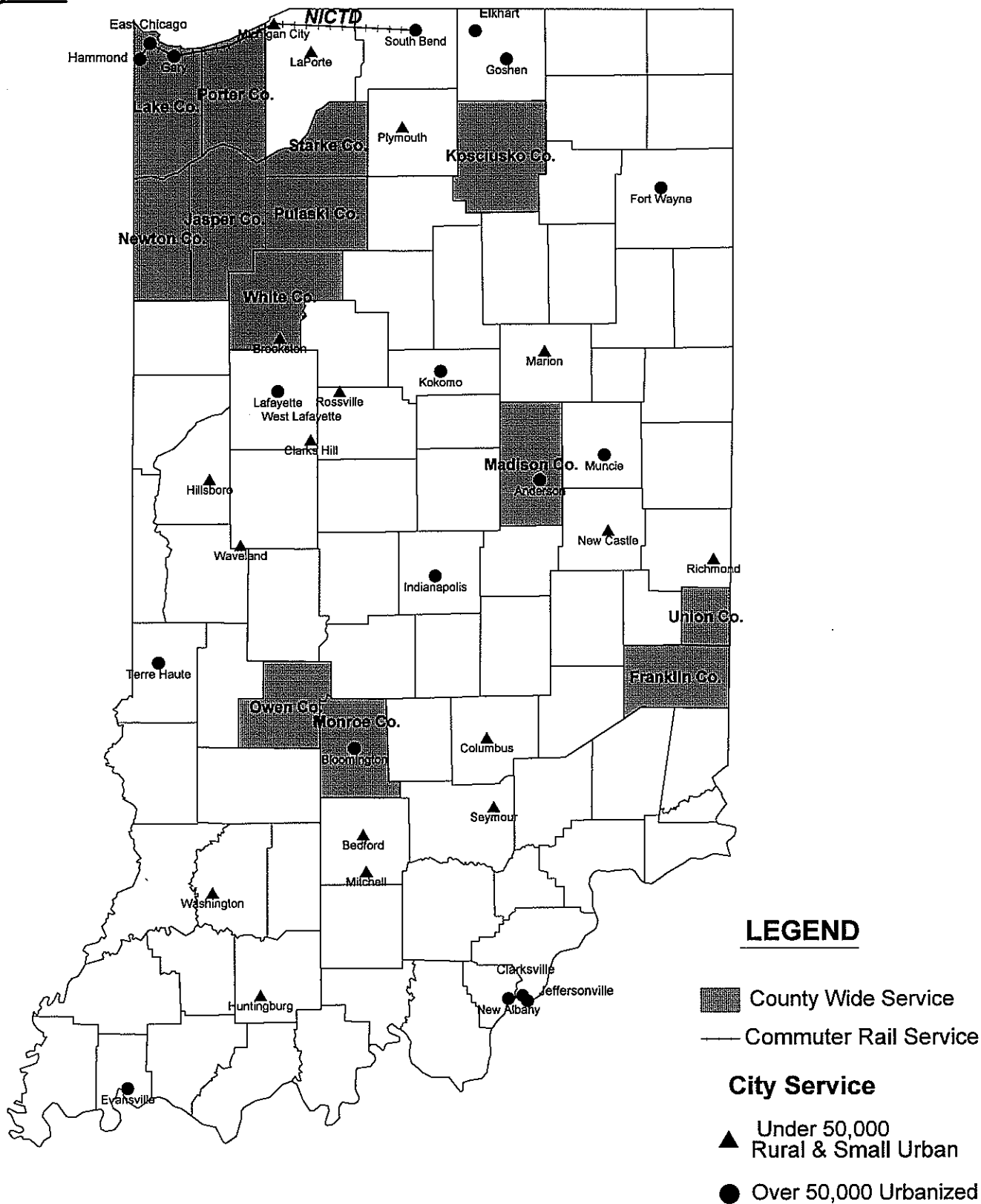
The Public Transit Section is now questioning this emphasis on cost efficiency and the lack of a consumer oriented strategy for improving mobility. Data suggests that transit may be losing market share, as ridership continues to fall in urbanized areas. At the same time new funding and service demands are emerging in rural and suburban areas excluded from the state’s Public Mass Transportation Fund program. INDOT intends to address this through an evaluation study of the state PMTF and federal assistance programs.

## **Public Transportation Statistics**

### **Public Transit**

The Department provides federal and state assistance to thirty-eight (38) public transit systems in Indiana. These systems represent a wide array of service delivery characteristics, such as fixed route, demand response and electric rail service. Nineteen systems provide both fixed route and paratransit services, fourteen provide demand-response service, four provide fixed route and one is a commuter rail line. Based on a total 1990 Indiana population of 5,544,159, 73.0% (4,072,765) of the state’s residents have access to some form of public transportation. **Figure 2** shows the location of these public transit systems operating in the state.

**Figure 2**



Prepared by: INDOT, Transportation Planning Division, 1995, DKH

# **PUBLIC TRANSPORTATION SYSTEMS IN INDIANA**

Fixed route service is provided on a predetermined route and time schedule. This is the traditional and most prevalent form of transit service. Paratransit is characterized as an advance call door-to-door service. The majority of paratransit passengers are elderly and disabled individuals. Based on information from the Indiana State at Board of Health, the elderly are one of the fastest growing segments of Indiana's population. This is expected to place further demands on public transportation services. Also, commuter rail passenger service is provided between South Bend and Chicago by the Northern Indiana Commuter Transportation District.

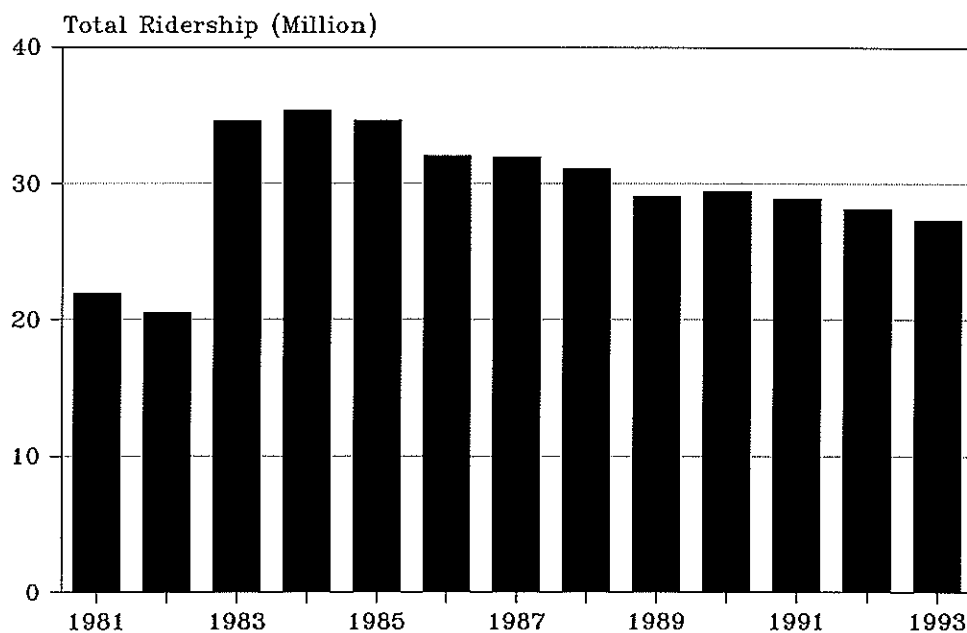
Indiana's transit systems made over 27.3 million passengers trips during 1993, a decrease of 2.92% from 1992. Since 1989, transit ridership has declined. State-wide public transit provided more service but made fewer passenger trips, public transit ridership has declined by 6.2%, from 29.1 million in 1989 to 27.3 million in 1993. Over the same period, service levels have increased by 14.0%. Since 1989, ridership on urbanized (>50,000 population) systems has declined by 13.34% from 21.21 million in 1989 to 18.38 in 1993. Over the same period, ridership on county & small urban (<50,000 population) service has increased 210,000 passengers or 9.0%. **Figure 3** shows the five year trend in transit ridership.

Total public transit revenues in 1993 were \$87.8 million. Fare revenue in 1993 was \$23.6 million, which accounted for 27.0% of total expenses. The statewide fare recovery ratio illustrates the extent to which total operating expenses are covered by fare paying passengers. Overall, fare revenue has increased 17.0% since 1986. In recent years transit systems have been relying on increased operating assistance from state and local sources. In 1981, local funding financed 13.0% of statewide transit service. However, in 1994, local funding accounted for 28.0% of transit financing in Indiana. The state Public Mass Transportation Fund (PMTF) and local subsidies have increased by 100.0% and 380.0% respectively since 1981. Over the same period, however, federal funding sources have declined 12.0%. **Figure 4** provides a breakdown of federal, state and local operating funding from 1981 to 1993.

Public transportation cost \$87.7 million in 1993, an increase of 6.0% over the previous year. The Consumer Price Index rose 2.6% over the same period, transit expenses in real terms only increased 3.4%. Since 1989, the cost per passenger trip has risen \$2.08 and the cost per mile has increased \$0.32. In 1993, it cost \$2.63 for each vehicle mile traveled. **Figure 5** provides the five year trend in expenses per passenger trip and passenger mile.



Figure 3  
Indiana Public Transit Ridership



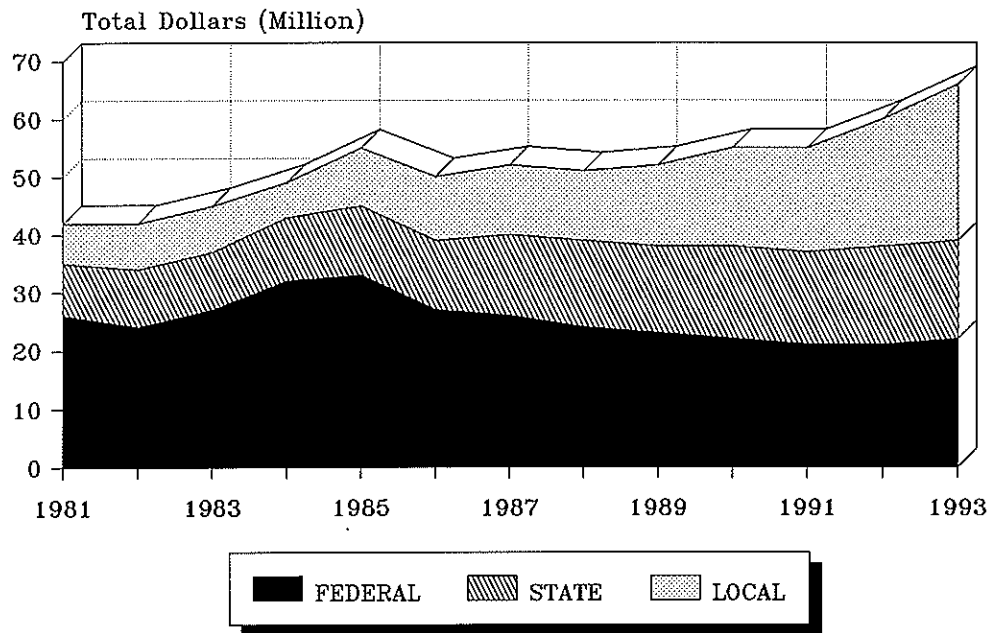
Source: INDOT, Planning Division, 1994.

Table 2  
Indiana Public Transportation Ridership

Year	Total Ridership	% Change
1981	21,907,356	- - -
1982	20,458,188	-6.6%
1983	34,558,640	+40.8%
1984	35,391,568	+2.4%
1985	34,627,516	-2.2%
1986	32,052,776	-7.4%
1987	31,946,924	-0.3%
1988	31,107,096	-2.6%
1989	29,075,474	-6.5%
1990	29,432,454	+1.2%
1991	28,912,865	-1.8%
1992	28,153,415	-2.6%
1993	27,330,243	-2.9%
Average	28,580,890	+24.8%

Source: INDOT, Intermodal Division, 1994.

Figure 4  
Public Transit Financial Assistance



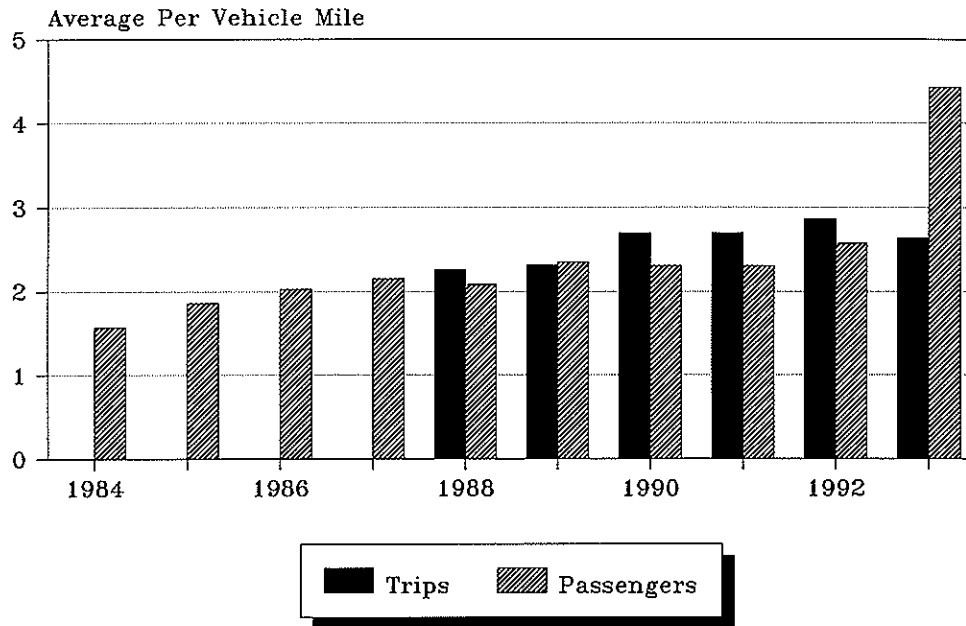
Source: INDOT, Planning Division, 1994.

Table 3  
Indiana Public Transit Financial Assistance

Year	Federal	State	Local
1981	\$26.0	\$ 9.0	\$ 7.0
1982	24.0	10.0	8.0
1983	27.0	10.0	8.0
1984	32.0	11.0	6.0
1985	33.0	12.0	10.0
1986	27.0	12.0	11.1
1987	26.0	14.0	12.0
1988	24.0	15.0	12.0
1989	23.0	15.0	14.0
1990	22.0	16.0	17.0
1991	21.0	16.0	18.0
1992	21.0	17.0	22.0
1993	22.0	17.0	27.0

Source: INDOT, Intermodal Division, 1994.

**Figure 5**  
**Comparative System Expense Analysis**



Source: INDOT, Planning Division, 1994.

**Table 4**  
**Comparative Expense Analysis\***

Year	Trips Per Vehicle Mile	Passengers Per Vehicle Mile
1981	N.A.	N.A.
1982	N.A.	N.A.
1983	N.A.	N.A.
1984	N.A.	1.57
1985	N.A.	1.86
1986	N.A.	2.03
1987	N.A.	2.15
1988	2.26	2.08
1989	2.31	2.35
1990	2.69	2.30
1991	2.69	2.30
1992	2.86	2.57
1993	2.63	4.43

Source: INDOT, Intermodal Division, 1994.

\*Total Vehicle Miles and Passengers Per Trip figures do not include data from the NICTD.

Federal capital funding for public transit agencies has declined by over 49.0% since 1989 when adjusted for inflation. Over the same period, federal capital funding for large size urban systems has declined by 64.0%. Total federal capital funding in 1993 was \$2.8 million and total state funding was \$612,000. With an average fleet age for passenger vehicles at eight years out of a useful life of twelve years, major capital funds will be needed to meet replacement plans.

### **Specialized Transit**

Nearly one-third (33.3%) of Indiana's citizens live in non-metropolitan areas compared to one-fourth (25.0%) for the rest of the nation. Residents of Indiana's metropolitan areas enjoy an unusually high level of access to private vehicles. The share of households without at least one car or truck is only two-thirds (66.6%) the national average for metropolitan areas. Statewide, Census figures show that 8.0% of all households in non-metropolitan areas and 9.5% in metropolitan areas are without automobiles or other personal vehicles.

The groups which make up the "Transportation Disadvantaged" - elderly, disabled and poor - constitute 24.0% of Indiana's population compared to the national figure of 27.0%. While the figure varies from county to county, the regional differences are not great. Specialized transportation providers are those serving transportation disadvantaged groups, such as the elderly, disabled or providing transportation for a specific purpose, such as medical trips or to and from sheltered workshops. This is the only transportation resource in about 60.0% of Indiana counties. Aging and community services programs are the largest source of funding for specialized transportation.

Half of Indiana's non-metropolitan and 30% of its metropolitan counties are not served by either public transit or taxicabs and are dependent on available specialized transportation providers for an alternative to the automobile. Most of these providers are either county-wide non-profit social service agencies that provide transportation services to their elderly and disabled clients, or non-profit providers such as ambulance services. These providers currently operate approximately 1,957 vehicles statewide. Thirty eight and a half percent (753) of these vehicles are lift equipped. These specialized transportation providers had a total reported ridership of approximately 4.7 million trips in 1993.

Specialized transportation providers are generally small operations. The reported median budget for 1993 was about \$34,500 annually, and the median fleet size was three vehicles. Transportation is usually limited to program clients and specific trip purposes (medical, nutrition, job training, etc.) These specialized providers are highly dependent on financial support from the state and federal

programs other than public transit assistance. These state/federal programs account for about 86.0% of revenues in both metropolitan and non-metropolitan areas. These non-metropolitan providers are not only more dependent on state and federal funding sources, but on funding from local government, which account for 21.0% of all revenues. A vast majority of state/federal operating funds come from or through the state of Indiana via the Departments of Human Services, Public Welfare, and Mental Health. Funding is distributed throughout the state to Area Agencies on Aging (16), rehabilitation facilities (60), and Community Action Agencies (25). Though exact figures are not available, INDOT estimates that in 1993, these three departments dispersed about \$25.0 million in passenger transportation operating funds.

### **Intercity Transit**

Intercity service is regularly scheduled bus service for general public which operates with limited stops over fixed routes connecting two or more urban areas not in close proximity. Under Section 18(I) authorized by ISTEA, states are required to spend a portion of their Section 18 funds to: "carry out a program for the development and support of intercity bus transportation". Intercity projects are to be included in the annual Section 18 Program of Projects, look at needs of the entire state and adopt a program that will support a network of interstate services. Eligible activities include the following:

1. Planning for intercity bus transportation.
2. Marketing for intercity bus transportation.
3. Capital Grants for intercity bus shelter, joint use stops, and depots.
4. Operating Grants through purchase of service agreements, user-side assistance and coordination of rural connections between small transit operations and intercity bus carriers.
- 5.

Intercity federal funding in Indiana for 1994 includes: total capital funding of \$114,800, total planning of \$72,000, and total operating projects at \$71,197. The total intercity federal funding for 1994 is \$448,249 of which \$257,997 is to be used for projects costs, and \$190,252 are unobligated funds.

In 1992, the Indiana University Institute for Urban Transportation completed a study of intercity transportation within Indiana. The study examined the use of intercity transit service since 1976 in terms of the number of operators, trips provided, and the effect of deregulation on the industry. The report

analyzed the use of both regular and irregular departures in determining service levels. "Regular Departures" is defined as the number of regularly scheduled departures per week. "Irregular Departures" are the number of other scheduled departures per week. In 1990 a total of seven intercity carriers were operating in the state on sixteen routes. This compares to nineteen operators who were providing service in 1976 on forty-two routes. Consequently, intercity service in 1990 was 37 percent of the 1976 service levels. Although in 1991 intercity usage rose to 44 percent of the 1976 service levels.

A 1984 study on the effects of deregulation on the intercity bus industry found that in Indiana between 1975 and 1982, 86 communities lost all intercity bus service and 79 communities lost regular stop service. The number of communities receiving service declined at an average annual rate of 4.0% per year between 1975 and 1982 while the number receiving regular stop service declined at a rate of 4.0% per year. As a result, there were approximately 25.0% fewer communities receiving service in 1982 than in 1975.

## **Public Transportation System Planning Policy and Strategies**

### **Introduction**

Public transportation system planning policy and strategies serve as the foundation for program implementation and administration. The following policy statement and strategies are currently used to guide the Public Transit Section of the Indiana Department of Transportation.

### **Policy Statement**

The following policy statement taken directly from the Indiana Department of Transportation's updated policy plan *Transportation In Indiana: Multimodal Issues, Policies and Strategies For The 1990's And Beyond*, identifies the public policy goals of the Public Transit Section.

*"The Public Transit Section of the Indiana Department of Transportation will strive to develop an efficient and well-integrated multimodal transportation system. This will be pursued through cost-efficient and cost-effective management and maintenance of existing facilities and services, through appropriate expansion of capacity, and through removal of bureaucratic constraints to efficient and effective transportation of people, goods and freight."*

## Policy Strategies

The following system planning policy strategies, several of which were taken directly from the Indiana Department of Transportation's updated policy plan *Transportation In Indiana: Multimodal Issues, Policies and Strategies For The 1990's And Beyond*, will be used by the Public Transit Section to guide local public transit systems and to offer innovative solutions for achievement of more efficient and effective services.

- INDOT supports the efforts of transit operators to increase their share of person-trips carried by providing more efficient and effective service. Transit service includes all forms of high-occupancy and non-motorized travel.
- INDOT will work with local public transit systems and will encourage innovative solutions to achieve more efficient and effective services.
- INDOT will encourage better coordination of transit operations in regions where service overlaps and gaps exist.
- INDOT will develop a Public Transit Management System using performance analysis to identify needs and improve investment decision making.
- INDOT will encourage the expansion of specialized transportation services to better serve the general public.
- INDOT will encourage improved bicycle and pedestrian access to transit services.
- Work to improve the image of public transit statewide.
- Continue to support transit driver training in areas of defensive driving, passenger assistance, vehicle inspections, and drug/alcohol awareness.
- Work with associations and other interested parties (such as the Indiana Transportation Association and the Indiana Council on Specialized Transportation) to promote safety in the operation of passenger transportation services. An example of cooperative efforts is the continued support of the Indiana Council on Specialized Transportation's annual Driver Rodeo.
- Continue to review safety programs/records as a part of the periodic and ongoing compliance reviews of grantees.
- Emphasize efficient and effective system performance in determining the allocation of Public Mass Transportation fund monies.

- Work with federal and local agencies to obtain federal funds for capital, research, and demonstration projects, and to ensure an equitable allocation of federal funds to Indiana.
- Support equitably financed intermodal transportation systems and financial systems that fully recognize costs of transportation investment decisions.
- Encourage improvements to transportation planning and coordination with land developments in urbanized areas, work more closely with MPOs and transit systems.
- Encourage local entities to consider transit in land use and transportation planning particularly local zoning requirements that encourage the use of transit and shared ride options.
- Endorse the use of public transportation and ridesharing as techniques to promote efficient use of state transportation resources and facilities.

## Indiana's Transit Issues

### Public Transit Issues

The following narrative outlines specific conditions within the transit industry which are directly affecting the resources available to provide additional transit service within the nation and within Indiana.

- **Reduced Federal Operating and Capital Revenue.** Federal funding showed significant variation over the period 1981-1993. Federal funding has dropped from \$25.1 million in 1981 to \$22.5 million in 1993. The 1993 funding represents a reduction of nearly 30.0% over a nine year period. These assistance reductions have caused public transit systems to offset the loss with state and local funding. Seven (7) transit systems are Public Transportation Corporations (PTCs), and have a dedicated funding source through property taxes. However, due to the property tax controls of 1973, an increase in the tax levy is a difficult process which requires local & state approval. Additionally, non-PTC systems rely on local funding through a year-to-year local appropriation. Consequently, many agencies have unstable operating budgets which makes it difficult to plan long-range improvements in transit service.
- **Increased Federal Compliance Requirements.** In 1990 two key pieces of legislation, the Clean Air Act and the Americans with Disabilities Act, were enacted. Also, starting in 1995 transit employees



who work in safety-sensitive positions must be tested for drugs and alcohol. The increased compliance and regulatory costs of these laws will have a profound effect on a transit systems ability to provide additional transit service.

*The Clean Air Act* includes legislation which requires transit agencies to purchase alternative fueled vehicles. Alternative fuels include ethanol, methanol, propane and natural gas. It is estimated that the purchase price of an alternative fueled bus is 20.0% higher than the cost of a diesel bus. The cost of operating an alternative fueled bus is also higher. According to the American Public Transit Association (APTA) a CNG vehicle averages 3 miles per gallon at \$0.35 per mile. In contrast, a diesel powered vehicle averages 4 miles per gallon at \$0.15 per mile. Areas in non-attainment, according to EPA standards, are bound by more stringent clean air standards. In addition to requiring cleaner fueled vehicles, agencies are required to work with the local Metropolitan Planning Organization (MPO) to review existing Transportation Controls Measures (TCMs) within the community to reduce single occupant vehicles. Currently, five urban areas in the state are considered in non-attainment. Although the legislation should contribute to improved ambient air quality, the cost of these clean air measures will have a major impact on the operating budgets of transit agencies.

*The Americans with Disability Act (ADA)* is requiring increased accessible transportation to disabled passengers. ADA requires all new fixed route transit vehicles be lift-equipped and have forward-facing wheelchair tie-downs. Systems will be required to provide "comparable service" to the disabled. This means the service to the disabled should be comparable to the service provided the typical transit user. Systems will be required to prepare a paratransit plan that outlines existing and future procedure for providing transit service to the disabled. This Act, while improving the mobility of persons with disabilities, could have a significant economic impact on transit systems.

*The Alcohol and Drug Testing Rules* take effect on January 1, 1995 for operators in service areas over 200,000 and January 1, 1996 for operators in service areas under 200,000 or in rural areas. The laws include Sections 5307, 5309 and 5311 of Title 49, USC. Employees in safety sensitive positions must be tested including

employees who: operate a revenue or non-revenue service vehicle, control the dispatch or movement of a revenue service vehicle, and maintain revenue service vehicle or equipment. The testing occurs pre-employment, upon reasonable suspicion, random, post-accident, return to duty and follow up. Transit systems and their employees will be responsible for the costs involved with the testing including, the testing itself, formulating and distributing the policy, and training safety-sensitive employees about the consequences of using drugs. The act will improve the safety of transit, but will increase the costs of providing public transit.

- **Labor Intensive Service.** In 1993 labor & fringe benefits expenditures were \$56.23 million. This figure represents 64.0% of total 1993 operating expenditures. Over the last five years, labor costs have increased 51.0%. Because most labor contracts are negotiated through a collective bargaining agreement over a multi-year period, systems are bound by labor wage rate increases. Therefore, labor expenditures must be balanced with service needs and capital investment.
- **Effect of Demographic Changes on Transit.** According to a recent Nationwide Personal Transportation Study, a greater share of person trips are being made by private vehicle and a lesser share made by other modes, such as transit. In addition, vehicle ownership has risen from 1.2 vehicles per household in 1969 to 1.8 in 1990. Vehicle Miles of Travel (VMT) have increased from 1969 to 1990 by 82.0%. Over the same period, population increased only 23.0%. From 1977 to 1990, the Vehicle Occupancy Rate (VOR) has declined from 1.9 to 1.5 persons per vehicle. This is an indication that carpooling and shared-ride trips are decreasing. These trends illustrate that individuals are demanding the increased accessibility that private auto travel provides. Consequently, private auto usage is increasing faster than the population rate. As this trend continues it will negatively affect public transit usage, particularly in the urbanized areas.

### **Specialized Transportation Issues**

- **Increasing Number of Elderly.** According to the 1990 census, seventeen (17.0%) of the state's population is elderly. Forecasts by the Indiana State Board of Health show that the elderly are one of the fastest growing segments of Indiana's population. The elderly experienced the early growth of personal mobility, and understand the economic and personal freedom it offers. The elderly expect that their

base transportation needs will be met as their personal mobility options decline. This growth is expected to increase the demand for additional passenger equipment.

In addition, a study completed for the Indiana Department of Human Services (Swindell, 1990) reveals that a decreasing driving independence with increasing age. Almost 93.0% of persons age 60 to 64 possess a driver's license. This figure drops slightly to 90.0% for persons age 65 to 74 possess a driver's license, while 79.0% of persons age 75 to 84 possess a driver's license. This figure drops to 45.0% for persons 85 years of age and older. Consequently, this age group is more dependent on others to meet their transportation needs and "... are at risk where no alternatives exist to provide them with the access to services they require." (Swindell, p. 70) According to the 1990 Census, Indiana has 938,560 elderly persons age 60 years or older. Using Swindell's figures, this means that almost 143,000 elderly persons age 60 and older will require some form of alternative transportation to the private auto.

The most common source of alternative transportation for the elderly is family and friends. But as Swindell notes:

*"... the public sector cannot expect this 'informal sector' to cover all the elders' various transportation needs. Furthermore, most elders prefer to remain as independent as possible for as long as possible. In urban centers, the problem is addressed more easily in terms of a supportable public transportation system. The problem arises in the rural areas where public transportation systems are a difficulty for planners as well as politicians seeking to tap small tax bases to help a proportionally small segment of their community." (p. 70).*

It also appears that for the rural elderly, the need for rural transportation is likely to continue and at a higher level than their urban counterparts. Though rural elderly have participated in the migration to the Sunbelt states, it has not been at the same level or rate as the urban elderly. One consequence is that the rural elderly who remain behind are often the poorest and most vulnerable members of their communities. Their needs will be compounded by lower incomes, lower available public budgets, a more dispersed population, difficulties associated with trip making and the lack of a developed inter-city or local transportation network even vaguely comparable to urban areas.

- **Coordination of Existing Services.** In most communities, a variety of public and private agencies and organizations provide transportation services to the elderly and disabled. Many of these organizations provide transportation services to only their specific clientele. At the same time that the need for specialized transportation services has increased, the cost of meeting this demand has also increased. A closer look at existing specialized transportation systems shows that many of these systems have been operated without regard to certain principles of economic efficiency and that some of these principles may be achievable through coordination. Coordination is one of the many steps to improving mobility for elderly and disabled persons in Indiana.

Coordination of specialized transportation services can 1) eliminate overlap and duplication of service to the same population groups in the same geographic area; 2) fill gaps in service; 3) save money and achieve economies of scale usually reserved for larger operations; and 4) improve and expand service. However, because of funding restrictions, volunteer contributions, insurance regulations, or special service requirements, some agencies cannot coordinate their transportation services.

In addition, there exist few incentives for coordination at the state or local level. This is due primarily to the lack of comprehensive transportation planning or review bodies at the county, regional and state level.

- **Funding Vehicle Replacement.** Specialized transportation providers are unable to spend their limited funding on vehicle replacement. Several of the assistance programs that funded vehicles (federal revenue sharing and Title III aging funds) have either been eliminated or have experienced a change in priorities, causing funding to be directed elsewhere. In 1980, Title III bought 38 vehicles for Councils on Aging in Indiana. In 1994, two (2) were purchased with aging funds.

An INDOT 1994 inventory of passenger transportation resources identified 1,957 specialized transportation vehicles operated by 274 agencies that serve the elderly, disabled and economically disadvantaged. The inventory found that the average vehicle age about 7 years and that about 10.0% of the vehicles were in poor condition. This translates to roughly 196 vehicles.

Currently, INDOT manages a program for providing capital assistance to private non-profit organizations for the transportation of elderly and disabled persons. INDOT purchases equipment on behalf of the grantee. Funding is provided on an 80.0% federal, 20.0% local basis. Within the pool of 686 vehicles purchased with Section 16 funds, there are 146 vans that are 4 to 7 years old. INDOT useful life standards recommend that agencies replace their vans every 4 years.

Since 1986, INDOT has received requests totaling \$21.0 million for this program. Because of limited federal funding, INDOT has only been able to fulfill \$7.0 million in requests, or 33.0% of the total requests. On average, INDOT receives requests to replace about 145 vehicles every year. INDOT only has funding to buy 50 to 55 vehicles. The average mileage of the vehicles replaced is around 140,000. INDOT useful life guidelines recommend replacement of vehicles at 100,000 miles. On average, INDOT receives about 60 applications for Section 16 funding each year. Because of limited federal funds, INDOT is only able to make partial awards to about 30 to 35 agencies. About two-thirds of the grant awards are made to recipients serving rural areas.

- **Implementation of the Americans with Disabilities Act.** Passed in July of 1990. This act mandates the elimination of discrimination against individuals with disabilities and provides enforceable standards to address discrimination. In September 1991, the U.S. Department of Transportation (USDOT) issued its final rule implementing the transportation provision of the ADA. The rule covers the acquisition of accessible vehicles, requirements for complementary paratransit for fixed route systems and provision for accessible transportation service.

The regulations about acquisition of accessible vehicles will have the greatest impact on specialized transportation providers. First, specialized provider must purchase wheelchair lift-equipped vehicles, unless the provider can demonstrate that its system, when viewed in its entirety, provides equivalent service to disabled individuals. Second, the regulations require forward or rear facing wheelchair stations in all accessible vehicles.

Since accessibility is now a civil right, human service agencies will need to purchase more vehicles to meet the demand. In addition, the requirements for forward or rearward facing wheelchair stations will reduce available seating in lift-equipped vehicles. This will force

human service agencies to purchase additional vehicles in order to carry the same number of passengers.

### **Intercity Bus Transportation Issues**

- **The Effect of Deregulation on the Intercity Bus Industry.** Many factors have contributed to the decline in intercity trips, however, the reduction can be directly correlated to the deregulation of the transportation industry in the early 1980's. Federal legislation was enacted that reduced regulatory restrictions in passenger airlines, motor carriers and railroads. This legislation was due to concern that the transportation market had been overly restrictive and counterproductive. Prior to the legislation, the intercity bus industry was required to operate unprofitable routes and services as a condition of having the exclusive operating authority to provide service on profitable routes and charters. The regulatory reform in the passenger airline industry altered airline fares on many of the same routes served by intercity carriers, thus, cheaper airline fares made it difficult for the bus carriers to compete.
- **Lack of Rural Intercity Bus Service.** One concern with this decline is that intercity service is the dominant mode for providing public transportation between small communities. A 1984 Intercity Study shows that within the State of Indiana in 1975, 85.0% of stops served communities of less than 10,000 people. By 1982, 99.0% of the dropped intercity stops affected communities with populations less than 10,000. Obviously, these service reductions are having a disproportional negative affect on rural communities. In response to the lack of intercity service to rural communities, Congress, provided for funding set-a-ride program in Intermodal Surface Transportation Efficiency Act. In Federal Fiscal Year 1994 states are required to spend no less than 15.0% of their mass transit funding for intercity bus transportation.

## **Public Transportation Management System**

### **Background**

In order to address problems of efficiency of operation and the maintenance of capital assets, Intermodal Surface Efficiency Act legislation of 1991 requires the development of Public Transportation Management Systems (PTMS). The systems must be developed and implemented in a cooperative manner between

the State, MPOs and local transit agencies. The states are required to have the transit management systems developed and implemented by October, 1996, and non-implementation will result in a penalty of apportioned highway and transit funds. On December 1, 1993, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) jointly published interim final regulations (IFR) for State development, establishment, and implementation of the management monitoring systems required by 23 U.S.C. 303.

A PTMS should include an inventory of assets, collection of operational data, identification of performance measures and procedures for prioritizing of investment strategies. An inventory of assets is to include rolling stock, terminals and maintenance facilities. Data collection is to encompass currently collected information on operational performance and asset conditions. Condition measures are needed to assess the operational capacity of rolling stock and facilities for determination of maintenance, repair and replacement activities. In addition, it is to evaluate future transit demands in order to assess the capital asset needs in the future. The PTMS will be a coordinated strategy of actions to be pursued by the State, MPOs and appropriate local agencies.

## **Objectives**

Much information is available in the INDOT Public Transportation Annual Report on the operational and financial performance of public transit systems in Indiana. Many of the elements required by PTMS currently exist in several transit systems. Currently research is being done to identify the current procedures used by the transit systems for their capital investment planning. An effort will be made to incorporate the existing reporting requirements in our statewide program.

The PTMS will create a capital assets data base for the Indiana transit systems which will include the inventory of rolling stock, terminals and maintenance facilities. To each capital item a condition measure will be assigned indicating its present serviceability. The timing of replacement, repair and maintenance of capital items will be determined based on the performance and condition measure values and life-cycle cost analysis. Concise reports summarizing the collected data and analysis of system performance will be produced by the PTMS.

An important use of the PTMS for INDOT will be in the statewide investment requirements analysis. The information generated by the PTMS will supplement the highway capital program in urban areas and it will include appropriate investments in rolling stock, terminals and maintenance facilities to provide a "manageable infrastructure" which can support public transportation strategies.

## Work Plan

The work plan is a written description of major activities necessary to develop, establish and implement a management or monitoring system, including identification of responsibilities, resources and target dates for completion of the major activities. A schedule shows the specific management or monitoring system and its stage of development in accordance with the required compliance schedule. Also, the system outputs will be considered in developing the metropolitan and the statewide transportation plans and improvement programs. The PTMS is required to be fully operational by October 1, 1996.

## System Issues

Transportation planners and local decision makers face a number of challenges in the coming years: maintaining and improving mobility, reducing auto emissions, and equitably distributing services to meet the needs of all sectors of society. Public transit will play a role in meeting these needs. However, transit service providers themselves must address a number of issues:

- The uncertain availability of federal, state and local funding resources.
- Increasing competition for these funds, not just between types of transit projects, but between transit and other modal investments and public expenditures.
- An aging capital base.
- New statutory obligations to serve disabled Americans, as required by the *Americans with Disabilities Act* (ADA), and improve vehicular emissions as mandated by the Clean Air Act Amendments (CAAA).

These issues necessitate the prudent management, efficient operation, and timely maintenance, rehabilitation, and replacement of existing transit assets. The sound management of capital resources is good common sense, and most transit operators utilize some sort of capital planning process to help support capital investment decisions. Data on statewide asset conditions and needs are significantly less developed. Yet such management information is critical, since States have a major impact on the implementation and operations of local transit services. For example:



- INDOT plays a significant role in funding of local major transit investments and operations. For example, in 1993, INDOT provided 17.0% of capital funding and 23.0% of operating funding.
- INDOT provides up to half of the twenty percent (20.0%) matching requirement for the utilization of Federal capital funds. It is in our interest to ensure that State funds are expended on the most cost-effective transportation investments.
- Indiana administers a wide range of transportation programs for the elderly and disabled. The U.S. Department of Transportation/Department of Health and Human Services (DHHS) Coordinating Council has recommended that these programs be coordinated at the State level to ensure the most efficient delivery of these special transportation services and the optimal allocation of limited financial resources.
- The establishment of "flexible funding" programs gives INDOT and MPOs discretionary authority to use certain FHWA funds for highway *or transit* projects throughout the State.
- The Intermodal Surface Transportation Efficiency Act (ISTEA) requires a statewide planning process that considers transportation system management and investment strategies designed to make the most efficient use of existing transportation facilities *and* methods to expand and enhance appropriate transit services.

According to the Federal Transit Administration's (FTA) most recent report to Congress on the performance and condition of mass transit in the United States, it will require expenditures of \$3.1 billion per year just to maintain, but not improve, the condition of current transit assets. Certainly, the sound management and maintenance of today's capital equipment and facilities is critical to meeting tomorrow's transit needs.

The Public Transportation Facilities and Equipment Management System (PTMS) required by ISTEA is a mechanism for the development of a statewide inventory and condition analysis of each state's major transit assets. It supports both statewide and metropolitan transportation planning by identifying needs, and strategies to address these needs as inputs to the planning process. The following provides a brief summary of the purpose of the PTMS, as well as some of the major issues involved in its implementation.

## Purpose Definition

The purpose of the PTMS is to provide decision makers with the information “to select cost-effective strategies for providing and maintaining transit assets in a serviceable condition.” Successful implementation of an operational PTMS will provide INDOT, MPOs and transit agencies with:

- A comprehensive inventory of a rural and urban transit facilities and equipment, which should include, but is not limited to the age of vehicles and facilities, the condition of vehicles and facilities, and replacement/rehabilitation costs and needs.
- The means to assess current and future conditions and needs, identify statewide major asset deficiencies, and determine when and where to allocate funding to meet statewide goals and objectives for the provision of public transit services.
- By establishing the condition of current capital stock, maintenance and replacement needs, the PTMS can be used by State and local public transportation agencies to develop and analytically support capital budgets.
- The means to generate strategies for consideration in statewide and metropolitan transportation planning processes when coordinated with the Intermodal Management System (IMS) and Congestion Management System (CMS), .
- By itself, the PTMS should provide decision makers with the information needed to establish optimal maintenance and replacement priorities and schedules and the level of investment required to maintain a cooperatively determined level of service. The PTMS further supports the results of the congestion and intermodal management systems by determining the capacity and condition of existing capital stock, and the expansion requirements necessary to implement the transit strategies generated by these systems.
- If determined necessary by INDOT, a mechanism for developing state and/or program-wide maintenance and replacement policies, standards, and schedules.

- At INDOT's discretion, the potential to include *Americans With Disabilities Act* (ADA) and Clean Air Act Amendments (CAAA) related information to monitor statewide efforts to meet these mandates.
- A possible mechanism for coordinating U.S. Department of Health and Human Services, Federal Transit Administration Section 16, and other special transportation service programs at the State level.
- A decision-support mechanism for allocation of statewide discretionary funding since a majority of federal-aid transportation programs are administered through the states. By identifying statewide and regional capital investment needs, the PTMS serves as an input to the programming of federal, state, and local resources for maintaining and replacing current assets. Results of the PTMS can help support and/or justify the allocation of :
  1. Flexible funds for transit;
  2. Sections 16 and 18 to subrecipients
  3. Transfer of Sections 16/18 funding to Section 9;
  4. Redistribution of Governor's Section 9 apportionment for urbanized areas under 200,000 population;
  5. PMTF discretionary and other state revenue discretionary funding.

Implicit in the development and implementation of the PTMS is the establishment of a new relationship between INDOT, metropolitan planning organizations (MPOs), and local public transit operators. The benefit of a PTMS is two-fold; while the PTMS clearly provides for a statewide mechanism for the monitoring and evaluation of the condition of transit capital assets, it should also be viewed as an opportunity for all participants in the process to forge a broader vision of public transit delivery within the context of a larger transit system.

There are a number of issues that INDOT, MPOs, and local transit operators need to consider during the development and operation of the PTMS. These issues are identified in the following discussion.

The State of Indiana, in cooperation with Metropolitan Planning Organizations and FTA Sections 3, 9, 16 and 18 recipients and subrecipients, will develop a PTMS which will best accommodate the unique needs and institutional

relationships of all affected agencies. The interim final rule requires that states, MPOs, and transit operators cooperatively determine:

- Roles and responsibilities in the implementation of the PTMS;
- Data collection activities and the level of detail for the collection of data;
- Identification of condition measures.

The interim rule recognizes the wide range of arrangements and relationships between state DOT's and public transit providers, and the diverse capital needs among transit operators. States, MPOs, and transit operators, therefore have great latitude in establishing the institutional framework for developing the PTMS. For example, participants in the PTMS development process may choose to implement a system which ties compliance with statewide condition standards as a policy for investment of state administered funds. Similarly, states, MPOs, and operators may opt for statewide life-cycle, spare ratio, and maintenance standards above and beyond FTA-mandated standards for federal funding eligibility. Other states may prefer that local operators establish and follow their own objectives to meet long-term goals. The intent is that the coordination required in the PTMS development process establish a clear, mutually acceptable policy for its operation, utilization, and, over time, its effectiveness.

Furthermore, although the PTMS is a state requirement, the system should be developed to provide for the utilization of results at the metropolitan and/or regional level. Dependent on the decision making process of the states, MPOs, and transit operators, a network of metropolitan or "modular" systems may be developed which tie several substate Public Transportation Management Systems into the statewide system requirement.

### **Implications of PTMS Coordination Process**

To the extent that states have traditionally played a role in the provision of technical assistance and funding for public transit services, the availability of data or the capacity for existing institutional bodies to coordinate and manage asset data may be a major issue. Many transit operators, particularly larger, more sophisticated properties, have capital planning and needs evaluation experience which would be valuable to the development of a PTMS data structure and the identification of appropriate condition measures and standards. In any case, cooperation with transit operators and MPOs is required in the implementation of the PTMS.

In order to accommodate the needs and technical capabilities of diverse types and sizes of transit systems, and to establish a management system which supports decision making processes of state, metropolitan, and rural areas, the PTMS development process should be as inclusive as possible. Transit operators, state transit associations, and MPOs are therefore being used to advise INDOT on the approach to system development to ensure that their views and needs are considered and incorporated into the PTMS.

### **Data Collection**

The successful implementation of a PTMS is dependent on the collection of data for the purposes of:

- Analyzing the condition of existing transit assets and predicting future conditions.
- Identifying maintenance and improvement needs.
- Determining policies, projects, and schedules for future capital investment.
- INDOT will work, in cooperation with MPOs and local transit operators to define the detail of asset data to be collected. At a minimum, base year inventory data for facilities and equipment should be collected at a level deemed appropriate for the identification of statewide transit system deficiencies and the strategies for meeting these needs.

Asset management is a function of sound transit operations. The Federal Transit Administration (FTA) assumed that most transit operators have established management processes for the maintenance and replacement of some capital assets, and that at the metropolitan level a significant portion of the required PTMS inventory data is available. FTA Section 9 grantees are currently required to:

- Conduct a biennial inventory of all real property (land, including improvements and structures), and equipment acquired with FTA assistance (FTA Circular 5010.1A).
- Maintain property records, which includes use and condition, that is to be reconciled with physical inventories at least once every two years (FTA Circular 5010.1A).

- Collect Data on capital equipment for the purposes of Section 15 (FTA Circulars 2710.A, 2710.2A, and 2710.4A).
- Maintain a documented maintenance plan for rolling stock, and maintenance records to document that the plan is being implemented. While not required, a maintenance plan for real property/facilities is recommended (FTA Circulars 90310.1A and 5010.1A).

Compliance with these requirements is verified through Federal Transit Administration's Triennial Review process.

INDOT is given greater flexibility in the management and disposition of FTA funded equipment under Section 16 and 18. However, Section 18.20(a) of 49 CFR requires that INDOT's fiscal control of federal grants to subgrantees must be sufficient to at least permit the preparation of financial reports and the tracing of funds to ensure compliance with applicable management statutes. This control may include a basic inventory of capital assets, which is a common component of the most basic of management principles.

Furthermore, FTA's Section 16 (Circular 9070.1C) and 18 (Circular 9040.1C) circulars requires that INDOT develop a State Management Plan (SMP) for the effective administration of these programs. INDOT has approved plans for both programs which addresses project selection criteria and the method for distributing funding.

### **Implications of Data Collection**

The cooperative system development process described earlier, must determine an appropriate level of detail for the collection of asset information. Affected agencies face two significant challenges:

- Identify data requirements which support statewide and regional decision making processes, and;
- Determine a state structure whereby the optimal utility of the results of the PTMS is achieved relative to the costs of collecting and coordinating these data.

Factors to consider when making this "trade-off" include not only what types of assets to include in the physical inventory, but the kind of information

(i.e., physical characteristics, maintenance and repair history, etc.) to collect on each asset.

While much of the data on rolling stock should be readily available and otherwise fairly easy to collect, it is more difficult to collect data on such assets as stations, maintenance facilities, and garages, since facility function and design is much less uniform than for vehicles. Additionally, facilities have many more components to monitor and have generally not received the degree of analysis that have rolling stock and rail vehicles, and no standards for reasonable life, performance, etc., exist for maintenance facilities. The industry lacks, for example, consensus on optimal facility size, design and construction approaches, and underground fuel storage tank requirements.

The interim final rule provides the flexibility for INDOT to cooperatively determine with MPOs and local operators the level of detail necessary to describe its transit capital asset base and statewide investment needs and deficiencies. This will allow for differences in the size and types of transit services in urban and rural areas.

The interim final rule establishes minimum data collection and system coverage requirements. FTA encourages that states and transit operators consider going beyond these minimum requirements to include as wide a range of assets and transit service providers as possible. The more comprehensive the PTMS, the more credible the resulting identification of needs and investment priorities will prove to be.

### **Defining Goals, Objectives, and Condition Measures**

A coordinated system of goals, objectives, measures, and standards provides a foundation for the evaluation of existing (and proposed) transit services.

Goals are general concepts that broadly articulate policy priorities. Objectives are more specific statements and are used to define the actions required to meet goals. The PTMS will establish condition measures and standards which reflect goals and objectives. Measures should indicate a quantitative attainment of objectives, while standards define a threshold for minimum acceptable conditions.

The rule does not prescribe particular condition measures or standards for states to follow. While there are few industry standards relating to the evaluation of the condition of transit capital assets, FTA has supported a number of research activities on the development of needs assessment procedures, including the determination of condition measures and their application to specific transit

assets. One approach which states could use, for example, is the establishment of a series of general condition codes as presented in FTA's *Rail Modernization Study* (April 1987) and noted in Table 5.

Table 5  
General Condition Code Example

Condition Code	Category	General Definition
1	Bad	In sufficiently poor condition that continued use presents potential problems.
2	Poor	Requires frequent major repairs (less than six months between major repairs).
3	Fair	Requires frequent minor repairs (less than six months between repairs) or infrequent major repairs (more than six months between major repairs).
4	Good	Elements are in good working order, requiring only nominal or infrequent minor repairs (greater than six months between minor repairs).
5	Excellent	Brand new, no major problems exist, only routine preventative maintenance.

Source: INDOT, Public Transit Section, 1994.

The adoption of such codes allows for the ranking of needs and deficiencies. INDOT could then choose to establish an improvement policy for each condition code. Improvement options might include modernization (as defined by the *Rail Modernization Study* "the replacement of facilities and equipment which are functionally or economically obsolete with new components, subsystems, and/or entire units...to achieve higher levels of productivity"), rehabilitation ("a category of improvement whereby worn or weakened materials, components and subsystems are replaced with new parts having basically the same design of function as the original equipment"), and refurbishment ("existing equipment or facilities are restored to adequate levels of performance without the necessity for major replacement actions"). The development of improvement strategies will be further discussed in the following section.

In addition to condition evaluation measures, INDOT and affected agencies will adopt formal useful life standards by which to base improvement actions upon. When combined with asset condition analysis, condition standards provide a means of comparing the actual condition of a given asset with its intended condition. This may lead to the identification of a good or poor maintenance policies and procedures, depending on which side of the standard the asset falls.



FTA has established life cycle costing standards for the replacement of rolling stock. Normal minimum service lives for buses are identified in Table 6.

FTA Section 9 grantees must follow these life cycle standards, which are based on industry research and experience, in order to apply for capital assistance for the purchase of replacement vehicles. Other parameters grantees must consider when planning for various types of bus and rail asset replacement activities are provided in FTA Section 9 Circular 5010.1A.

Table 6  
FTA Vehicle Life Cycle Standards

Vehicle Size	Minimum Service Life
Standard size heavy duty, 35-40 foot length.	Twelve Years/500,000 miles.
Medium size heavy duty, 30 foot length.	Ten Years/350,000 miles.
Small medium duty, under 30 foot length.	Seven Years/200,000 miles.
Other vehicles, such as vans.	Four Years/100,000 miles.

Source: INDOT, Public Transit Section, 1994.

### **Implications of Defining Goals, Objectives, and Condition Measures**

Through the PTMS development process, INDOT will develop goals and objectives for the provision of public transit services, as well as appropriate measures and standards to analyze the condition of transit capital assets. However, to the extent possible, the development of a statewide PTMS will take into account and build upon the goals, objectives, and measures used by local transit operators.

It should also be noted that condition measures and standards may also vary between transit operators depending on the size, type and intensity of services provided and the climatic condition of specific areas.

The FTA has conducted several studies on the application of evaluation criteria and the evaluation of capital assets to determine vehicle and facility conditions and needs. These studies include:

- *Rail Modernization Study - Final Report, April 1987;*

- *Modernization of the Nation's Rail Transit Systems: A Status Report, August 1992;*
- *Bus Support Facilities: Conditions and Needs, January 1993.*

These studies have been reprinted for dissemination as guidance documents and are available from the FTA Office of Planning, TGM-20, 400 7<sup>th</sup> Street S.W., Washington, D.C., 20590.

### **Relationship Between PTMS, Other Management Systems, and the Planning Process**

As noted earlier, the intent of the PTMS is to provide decision makers with information to evaluate and select cost-effective strategies for maintaining transit capital assets in a serviceable condition. The PTMS generates this information through a process of:

1. Collecting various data on transit capital assets, and;
2. Evaluating these data against cooperatively defined measures and standards for maintenance, reliability, safety, etc.

The determination of asset condition, age, useful life, and replacement cost, which results from this evaluation, provides decision makers with the overall unconstrained recapitalization needs for maintaining current transit assets and supports the establishment of schedules for major maintenance and replacement actions.

The statewide needs mechanism, such as the PTMS, also provides transit operators and interest with a powerful tool for articulating and justifying these capital replacement and maintenance needs. Like the Bridge and Pavement Management Systems, the PTMS serves to identify major investment requirements and may be used to support capital budget requests. The availability of flexible funds to meet both highway and transit needs provides public transit operators with unprecedented funding opportunities. A comprehensive, credible PTMS puts public transit "at the table" with highway interests when competing for these federal resources to meet system maintenance and replacement needs.

The result of the PTMS serve as important inputs into metropolitan and statewide planning processes. Overall recapitalization needs are evaluated and prioritized according to the availability of financial resources, the expected transportation needs associated with future growth, and, in nonattainment areas,

required compliance with the Clean Air Act. Throughout these continual processes, transit investment priorities are further refined, as are the types of improvement strategies (modernization vs. rehabilitation, for example) necessary to achieve mobility, equity, and air quality goals. The results of this further evaluation are included in state and metropolitan long-range transportation plans, which reflect future needs, and the solutions to meet these needs, of multimodal regional and statewide transportation systems.

In establishing the condition and capacity of the existing transit capital stock, the PTMS also serves to support the evaluation of public transit strategies identified by the Congestion Management System, as well as provide information on the physical condition of transit components to intermodal transportation facilities and systems, as required by the Intermodal Management System. The strategies identified in these systems serve as inputs to metropolitan and statewide planning processes, where they are further evaluated within the context of short and long term transportation needs and available financial resources.

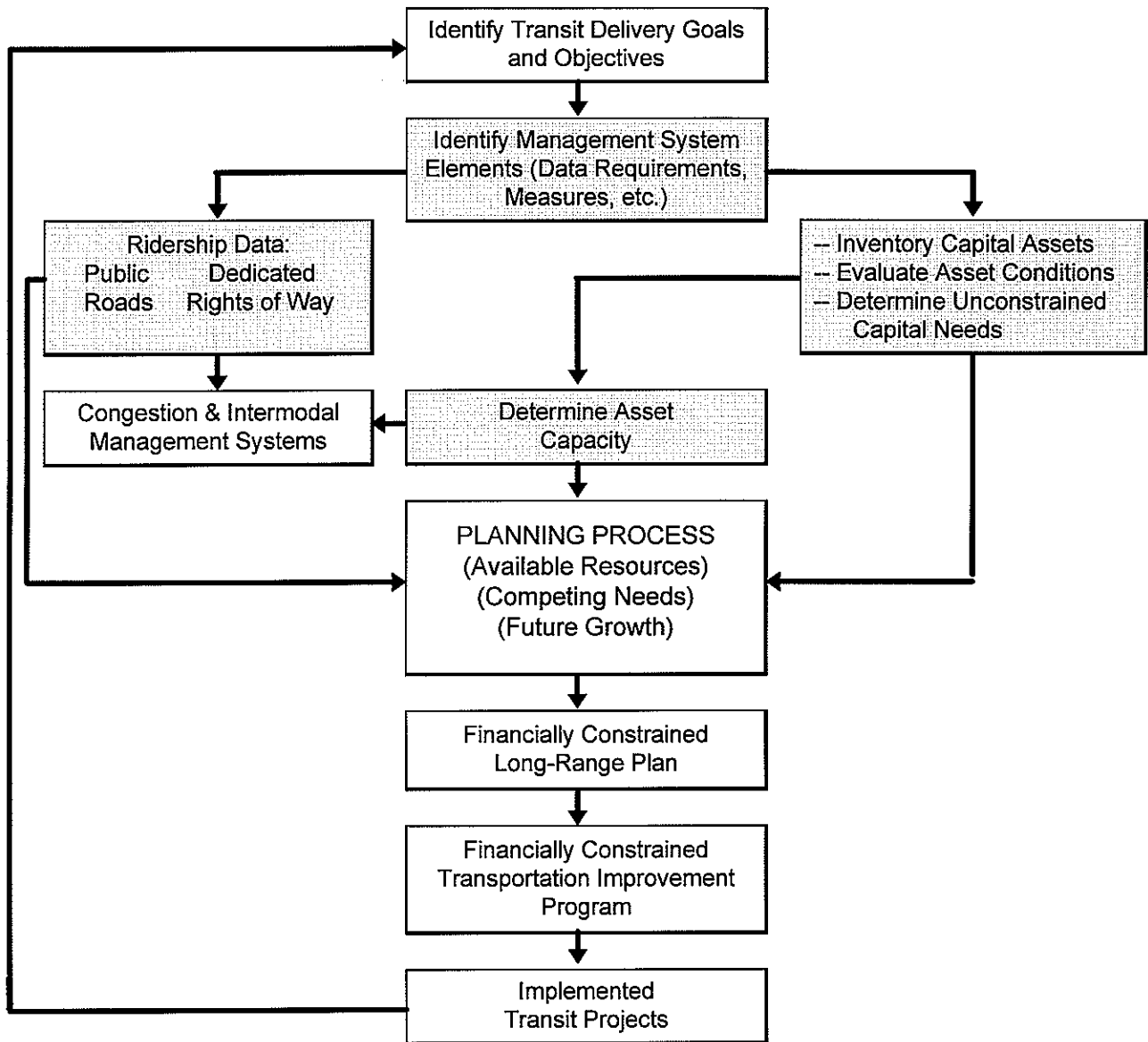
Information of capital transit projects programmed in and implemented from metropolitan and statewide transportation improvement programs is then fed back into the PTMS and planning process as part of an evolving, continuous process. Major new capital facility and equipment investments need to be included in PTMS inventory updates to re-establish capital needs and deficiencies, while the performance of these transit investments is evaluated in the planning process and Congestion and Intermodal Management Systems.

The following page provides a flow chart (**Figure 6**) illustrating the PTMS process and its relationship to planning and other management systems.

### **Implications of PTMS Relationships**

If developed as comprehensively and inclusively as possible, the PTMS will serve INDOT, MPOs, and transit operators as a valuable decision making tool and information source for metropolitan and statewide planning purposes. The validity of the results of the system, then, are tied to the level of effort and detail that INDOT, MPOs, and transit operators are willing to commit to the development and maintenance of the PTMS. While the development of all of the management systems may require significant initial investment, a clear and comprehensive approach to PTMS design and implementation will ensure its results, in terms of the establishment of cost-effective capital replacement schedules and allocation of capital funding resources. This will provide savings and benefits over the long term.

**Figure 6**  
**Public Transportation Management System**  
**and Relationships to the Planning Process\***



\*Shaded Areas identify PTMS Component.

To ensure the integration of the PTMS with other management systems and to avoid any duplication of data collection activities, it will be developed in close coordination with the development of the other management systems, (particularly the Congestion Management System and the Intermodal Management System. Because of its integration with CMS and IMS it is important that transit agencies participate in the development and implementation of these management systems.

### **Services and Performance**

At a time when state and local funding is increasing, ridership on public transit systems has been declining. Some of the reasons for the decline include, a change in attitudes regarding personal mobility, reduced service and increased fares, lack of adequate market research & promotion, reductions in school contracts, reductions in federal funding, unstable local funding, save lack of bus passenger amenities, such as shelters, side walks, terminals etc. However, it should be pointed out that the majority of the decline in transit ridership has been in the urban systems. Since 1988, transit trips on the state's largest systems has been reduced by 21.0%. This has caused transit to lose it's effectiveness in reducing reliance on single occupancy vehicles.

From 1988 to 1993 in Indiana, population levels remained stable while transit ridership has declined. Over the same period, congestion levels (identified as volume to capacity ratios) in urbanized areas has increased on interstate highways, freeways, and principal arterials. Clearly, the traditional fixed route, fixed schedule form of transit service is not the current choice of urban resident's.

Since 1988, an increase of 348.0% has occurred with respect to demand-response transit trips. Some of this increase can be attributed to the addition of new operators such as Franklin County Transit. Because of the flexibility and convenience of demand response service, many riders prefer it over the traditional fixed route transit service. In addition, as population declines in rural areas, resident's must travel farther for basic needs such as medical, grocery, etc. Demand-response service is effective in meeting these needs as most of the service provided is county-wide.

In response to the changing demographic and economic factors influencing the transit industry, INDOT needs to examine a more effective allocation of funding that encourages improved personal mobility by local transit agencies. A potential solution is to encourage consumer based strategies in the allocation of funding. These strategies might include state support for vanpool, jitney services, userside subsidy programs and high occupancy vehicles strategies. By supporting programs that encourage the reduction of single occupancy vehicles, the PMTF can be used as a tool to encourage positive service delivery techniques. This

flexibility might also encourage existing transit agencies to improve their method of service delivery to compete more favorably with single occupant automobiles.

## Indiana's Transit Needs

### System Needs

- **Increasing Number of Elderly.** According to the 1990 census, seventeen (17.0%) of the state's population is elderly. Forecasts by the Indiana State Board of Health show that the elderly are one of the fastest growing segments of Indiana's population. The elderly experienced the early growth of personal mobility, and understand the economic and personal freedom it offers. The elderly expect that their base transportation needs will be met as their personal mobility options decline. This growth is expected to increase the demand for additional passenger equipment.

In addition, a study completed for the Indiana Department of Human Services (Swindell, 1990) reveals that a decreasing driving independence with increasing age. Almost 93.0% of persons age 60 to 64 possess a driver's license. This figure drops slightly to 90.0% for persons age 65 to 74 possess a driver's license, while 79.0% of persons age 75 to 84 possess a driver's license. This figure drops to 45.0% for persons 85 years of age and older. Consequently, this age group is more dependent on others to meet their transportation needs and "... are at risk where no alternatives exist to provide them with the access to services they require." (Swindell, p. 70) According to the 1990 Census, Indiana has 938,560 elderly persons age 60 years or older. Using Swindell's figures, this means that almost 143,000 elderly persons age 60 and older will require some form of alternative transportation to the private auto.

The most common source of alternative transportation for the elderly is family and friends. But as Swindell notes:

*"... the public sector cannot expect this 'informal sector' to cover all the elders' various transportation needs. Furthermore, most elders prefer to remain as independent as possible for as long as possible. In urban centers, the problem is addressed more easily in terms of a supportable public transportation system. The problem arises in the rural areas where public transportation systems are a difficulty for planners as well as politicians seeking to tap small tax bases to help a proportionally small segment of their community." (p. 70).*

It also appears that for the rural elderly, the need for rural transportation is likely to continue and at a higher level than their urban counterparts. Though rural elderly have participated in the migration to the Sunbelt states, it has not been at the same level or rate as the urban elderly. One consequence is that the rural elderly who remain behind are often the poorest and most vulnerable members of their communities. Their needs will be compounded by lower incomes, lower available public budgets, a more dispersed population, difficulties associated with trip making and the lack of a developed inter-city or local transportation network even vaguely comparable to urban areas.

### **Urban Needs**

Generally existing urban services are serving and generating the passenger trip levels expected (based on current demographics and average service levels). However, three key demographic and socioeconomic changes will impact urban transit in the future.

- ***Population Aging.*** The aging of the “baby boomers” (who have been used to a greater degree of mobility than previous generations) will place greater pressure on the existing services. Although, private autos will continue to make up the primary form of travel, as the population ages, alternatives to the auto will become more important. This will be more pronounced in the metropolitan areas because their age structure is currently younger. Hence, the older population groups will grow more rapidly than in rural areas where populations are currently older than metro areas. The result over the next 30 years will be even greater discrepancies between the growth rates in the older age groups (i.e., age 70 and above) of metropolitan areas.
- ***Economic Restructuring.*** The metro areas are making the transition from a manufacturing economy to a service based economy faster than rural areas. Also, retail employment is growing more rapidly. Typically, these jobs pay less than the manufacturing jobs they are replacing. Many of the workers taking these lower paying jobs will become part of an ever growing transportation disadvantaged segment, that is more reliant on public transit or other economical alternatives to the private automobile.

- **Labor Force Participation.** More females and minorities are entering the labor force. Historically, both population segments have a greater tendency to use public transit. Because many will initially enter the work force in services sector employment, there will be a greater demand for transit and paratransit options.

Another fundamental concern is urban areas with populations over 10,000 that do not have transit service. As we see the demographic and socioeconomic changes take place, the potential demand for transit services will require some areas to start transit services. Currently, there are 31 such areas. However, the decision to initiate a transit system is a local one. Therefore, it is impossible to specifically plan for new systems and to build the financial capacity to accommodate them. In this situation, INDOT will have to take a more reactive strategy in these areas. INDOT has modeling tools that allow it to estimate passenger demand, vehicle needs, and capital and operating costs.

## **Rural Needs**

The majority of mobility needs are currently being served by formal and informal human and social service transportation providers. For the most part agency transportation services provide client only services, for limited purposes, which does not serve the broader transportation needs. These services tend to be infrequent and limited in time span and geographic coverage.

Currently, only ten counties and eight small communities (under 10,000 population) are served by public transit services. Therefore, access to public transit service is a missing mobility opportunity in most rural areas.

The aging of the population will have a similar impact in the rural areas as in the metro areas. The major difference is that it will be felt earlier. Since older persons are less likely to change residence, this older rural population will add to the mounting unmet public transit need.

## **Intercity Needs**

The loss of inter-city services due to federal and state deregulation in 1982 has lead to the loss of personal mobility. This is particularly true in rural communities under 10,000 population. The residents of these communities lost access to the services, retail and recreational opportunities in the urban areas.

The Transportation Research Center at Indiana University has recently completed an analysis of Intercity bus transit needs in Indiana. Their report states:



*"...The existing pattern of intercity bus service within Indiana is the result of several years of service cutbacks. Although the nature and level of the service provided in total may fall short of what Indiana would like to have, it is likely that the existing system is serving the profitable portion of the state's intercity bus market. At a route specific level it is apparent that operating costs are so large that they necessitate financial assistance in the best of cases. The extent of the loss of intercity bus transit service has been significant. The number of scheduled bus departures in Indiana communities has dropped from more than 14,000 in 1976 to a little more than 3,000 in 1992. This represents a drop in service of about 78.0%. Current survive is provided by six carriers. Of these, Greyhound is the leader and provides 51.0% of the scheduled service still offered in Indiana."*

### **Commuter Rail Passenger Service**

Since Indiana has only one commuter railroad this plan can be specific with respect to its future needs. The Northern Indiana Commuter Transportation District will remain the principal alternate modal choice for Chicago bound commuters. Changes in employment opportunities in the Loop will continue to dictate the success of NICTD. Peak period capacity constraints on the METRA Electric right of way from 115 Street into the Loop will seriously impede any future growth of commuter trips from Indiana. NICTD has increased the seating capacity of its new trains but will need to incorporate bi-level service to significantly increase actual carrying capacity. Eventually NICTD and Metra (Northeastern Illinois Regional Railroad Corporation) must reach agreement on upgrading the Metra Electric corridor.

NICTD remains the only commuter railroad in the country without a dedicated source of local revenue. Stable and sufficient source of local funding is paramount to NICTD's ability to meet future needs. Fare revenues recover roughly 58.0% of its operating costs. Like any business, NICTD must be price competitive with other transportation modes serving commuters. Therefore, additional fare revenues will be limited. NICTD uses state and federal funds to pay for the balance of operating costs and nearly all of its operating deficit and capital purchases. This trend will continue into the future. Non-traditional sources of revenue do exist, but they are minor in scope.

NICTD has invested considerable funds in its capital assets since 1977. To protect, maintain and improve these major investments a total capital investment of \$7.0-8.0 million annually is needed. Currently the federal Section 3 Rail Modernization funds provides from \$5.0 million to \$7.0 million. Therefore, a

modest shortfall is created (assuming no major changes in federal capital transit investment policy).

The Intermodal Surface Transportation and Efficiency Act of 1991 also includes \$1.0 million to purchase an 5.0 mile section of CSX Transportation right-of-way between Airline Junction and Hammond. The corridor is designed to attract the expanding commuter market in west Lake County. The service could conceivably merge with South Shore providing additional impetus for improving the Metra Electric right of way. A corridor study will need to be conducted before any fixed rail development is undertaken.

The City of Indianapolis continues to explore uses for abandoned, or soon to be abandoned, railroad right of way. The City has also identified the Norfolk Southern line as a potential passenger rail corridor. This corridor appears to present a better solution to meeting the growing commuter needs from the northeast quadrant of the metropolitan area.

## **Financial Needs**

### **Public Transit Operations**

Appropriate levels of public transit to resolve mobility problems cannot be accomplished without adequate financial support. Like many mid-western states, Indiana's transit operators are experiencing the effects of reduced or static federal support. Therefore, the burden for financing transit will fall upon the state, local governments, transit operators and the riders.

Over the next twenty years approximately \$1.84 billion will be needed to maintain the current operating levels for bus services statewide. This represents an average operating need of approximately \$92.1 million dollars a year. Table 7 shows the total, state and non-state operating funding needed over the next 20 years and the annual average.

Local government funding is expected to increase, as passenger revenues remain static. Federal funds are expected to increase over the next six years based on the increased authorization levels of the *Intermodal Surface Transportation and Efficiency Act of 1991*. However, we are already seeing a reluctance by the federal administration to fully fund this act, therefore, federal funding will continue to provide a static or decreasing percentage of the total operating funding needed.

Table 7  
Twenty Year Transit Operating Funding Needs (Million)

Timeframe	State PMTF	*Non-State	Total Needs
Yearly Average	\$24.760	\$67.341	\$92.101
**Twenty Year Total	\$495.270	\$1,346.825	\$1,842.095

Source: INDOT, Public Transit Section, 1994.

\*Yearly average assumes transit fares of \$23.577 million; federal funds of \$17.477; local match of \$24.327 million, and; charter/other federal of \$1.959 million. Twenty year total assumes transit fares of \$471.540 million; federal funds of \$349.556.080; local match of \$486.547 million, and; charter/other of \$39.181 million.

\*\*Twenty year total assumes a 2.0% annual growth rate in state funding, and a static rate in non-state funding.

This does not take into consideration the financial resources that will be needed for new system starts. However, as mentioned under the Mobility Needs section, INDOT will be able to estimate capital and operating financial needs through urban and rural needs models. Creating flexibility in the current financial assistance programs will be essential to accommodating these new start system needs.

### Major Investment Projects

The following three projects represent Indiana's current public transit major investment projects.

1. **Bloomington Transit Building.** This project consists of a joint administrative, maintenance, and storage facility with Indiana University Transit. The estimated total cost is \$4.87 million with federal and state funds at \$3.099 million and local funds at \$1.774 million.
2. **South Bend Intermodal Facility.** The City of South Bend is building an intermodal transfer facility on the perimeter of the Central Business District. The estimated total cost is \$20.121 million, with federal and state funds at \$14.86 million, and local funds at \$5.261 million.
3. **Indianapolis Circle Mall.** This project involves the redevelopment of Washington Street for transit development associated with the Circle City Mall. The estimated total cost is \$9.0 million, with

federal and state funds at \$7.2 million, and local funds at \$1.8 million.

4. **NICTD.** The Northern Indiana Commuter Transportation District's major investment project consists of a variety of projects including: rail car overhauls, a new engineering facility in Michigan City, and a high-level platform project in Hammond. The total cost is \$8,520,578, with federal funds committed of \$6.816 million, and a local funds commitment of \$1.704 million.

**Figure 7** illustrates the three major investment transit projects currently programmed in Indiana.

### **Short-Range Vehicle Needs**

In June, 1990, INDOT completed a five-year study on future capital vehicle needs for public transit operators in Indiana. The study purpose was twofold. First, it revealed the planned vehicle types to be purchased between 1990 and 1994. Secondly, the study examined the various funding sources used in the procurement of vehicles and recommended some innovative financing techniques.

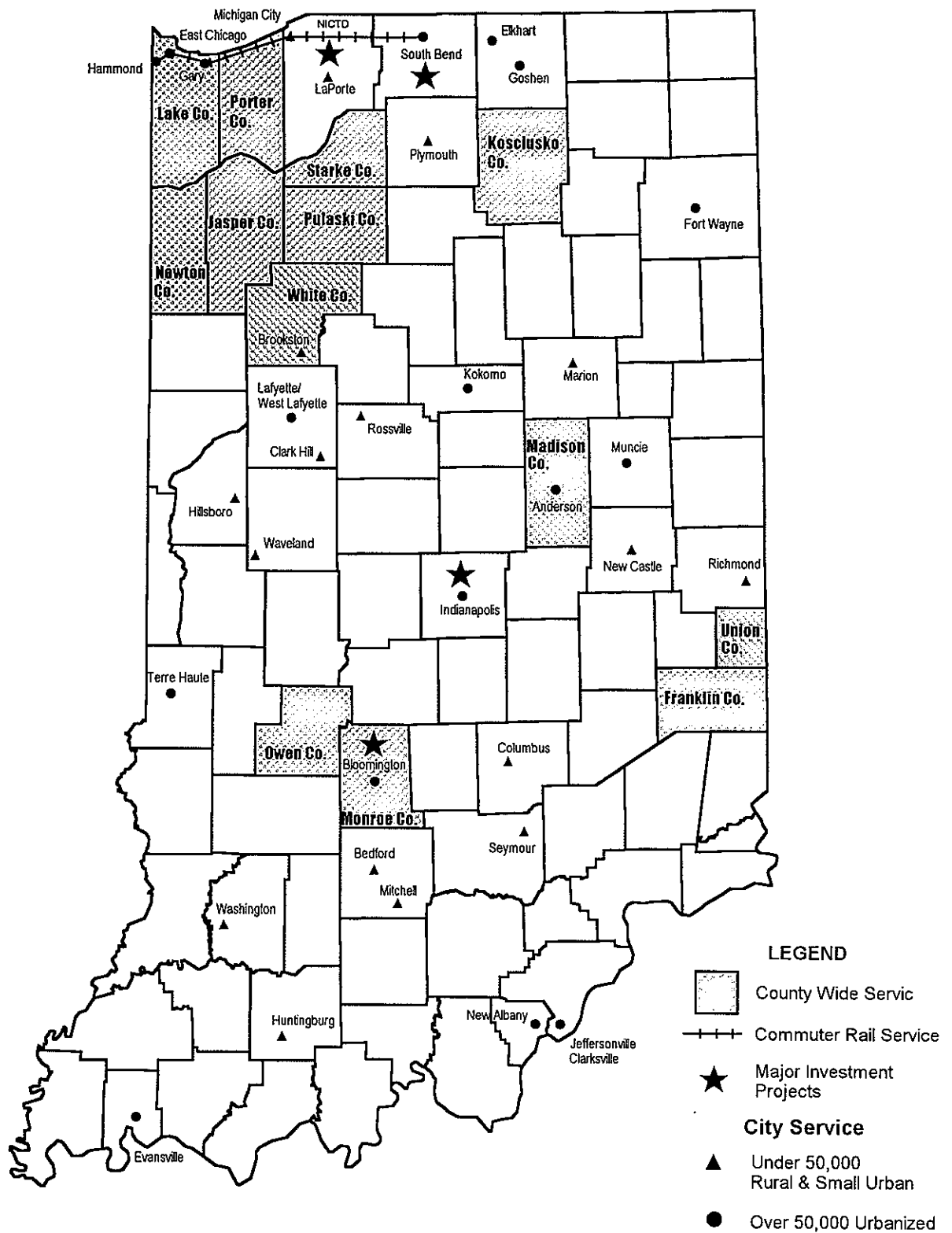
Based on the results of the study, a total of 376 vehicles were expected to be purchased before 1995. The total cost of the vehicles to be purchased, including rail cars for the South Shore railroad, was \$70.0 million. The majority of these purchases will be used to replace aging vehicle fleets. Only five operators are planning to expand the current number of vehicles in their respective fleet.

In order to fund these expected purchases, the study recommended a combination of federal and local funding sources. At the federal level, a statewide Section 3 discretionary application was recommended. In early 1992, the Public Transit Section submitted a statewide Section 3 application for \$17.0 million. The application in 1993 included a total request of eighty-two vehicles for fourteen public transit systems. The final grant was approved for \$8.8 million and a total of 64 vehicles. In addition, the study recommended that local agencies explore the Cumulative Capital Development Fund as a potential local funding source for vehicle replacement.

### **Specialized Transportation Vehicle Needs**

As stated earlier, in the issues section, non-INDOT financing of vehicle replacement is quickly disappearing. Since INDOT already receives more requests for vehicles than funding available, this situation is aggravating the lack of funding problem. In the short term (next five years) trends indicated that

**Figure 7**



Prepared by: INDOT, Transportation Planning Division, 1994.

## MAJOR PUBLIC TRANSPORTATION INVESTMENT PROJECTS

INDOT will continue to receive requests for at least 100 vehicles a year. INDOT will continue to fund only 35 to 40 of these vehicles a year. Unless other funding sources can be targeted to assist with this problem, by 1997 there will be a backlog of vehicles needing replacement of 325 to 350. This equates into a total cost for vehicle replacement of approximately \$9.0 million or \$1.8 million a year.

## **Summary Conclusions**

The Indiana Public Transit System Plan has provided a panoramic view of issues confronting public transit. This plan examined INDOT's role in public transit, provided a historical overview of public transit, discussed the current condition of transit, explored the critical issues facing public transit now and in the years ahead. The task of planning for transit has never been easy and is becoming more arduous as each year and each federal mandate passes. At the top of the list is finding state and local funding sources to replace diminishing federal sources. The dynamic nature of transit inevitably results in a complex planning process.